LISTING OF THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the

application. Where claims have been amended and/or canceled, such amendments and/or

cancellations are done without prejudice and/or waiver and/or disclaimer, and the right to

claim this subject matter in a continuing application is hereby reserved.

1.   (Currently Amended) In a digital wireless receiver, a method of detecting the

presence of a data packet in a received radio frequency (RF) signal comprising ~~the steps~~

~~of~~:

        ~~(a)~~   down-converting said RF signal into in-phase (I) and quadrature (Q)

baseband signals;

        ~~(b)~~   removing direct current (DC) offsets from said I and Q baseband signals;

        ~~(c)~~   modulating said 1 and Q baseband signals;

        ~~(d)~~   performing amplitude normalization on said modulated I and Q baseband

signals;

        ~~(e)~~   comparing said amplitude normalized I and Q baseband signals to a

reference signal via a complex correlator;

        ~~(f)~~   detecting a peak of said complex correlator output; and

        ~~(g)~~   ~~if~~ in response to said peak ~~is~~ being above a predefined threshold,

indicating that a data packet has been received~~, else performing steps (a) to (g) on a~~

~~subsequently received RF signal~~.

2.   (Currently Amended) The method of claim 1 wherein said ~~step of~~ performing

amplitude normalization comprises mapping said modulated I and Q baseband signals to

a quantized phase shift keying (PSK) signal constellation.

3.   (Currently Amended) The method of claim 2 wherein said ~~step of~~ detecting

further comprises:

        ~~(a)~~   converting said complex correlator output from complex to polar value;

(b)   calculating the signal magnitude of said polar value; and

(c)   determining if a data packet containing information bits is present.

4.   (Currently Amended) The method of claim 3 wherein said ~~step of~~ calculating is performed using the formula (mag)^2.

5.   (Currently Amended) The method of claim 4 wherein ~~the step of~~ said determining comprises employing a peak signal envelope detection technique.

6.   (Currently Amended) The method of claim 4 wherein the ~~step of~~ determining comprises comparing the signal magnitude to a minimum threshold and ~~if said signal magnitude exceeds said minimum threshold,~~ indicating that a correct signature was received in response to said signal magnitude exceeding said minimum threshold.

7.   (Currently Amended) In a wireless digital receiver, a circuit for detecting the presence of a data packet in a received radio frequency (RF) signal comprising:

(a)   a direct current (DC) offset module to correct for local oscillator (LO) leakage in in-phase (I) and quadrature (Q) baseband signals derived from said received RF signal;

(b)   an acquisition module communicating with said DC offset module comprising

i.   a M-ary phase shift keying (PSK) mapper for mapping said I and Q baseband signals to a quantized PSIS signal constellation;

ii.   a complex correlator receiving input from said M-ary PSK mapper for comparing said mapped I and Q baseband signals to a reference; and

iii.   a detector receiving input from said complex correlator for determining the presence of a correct signature.

8.   (Currently Amended) The circuit of claim 7 wherein the detector comprises:

i.   a complex to polar (C2P) converter for converting the output of said complex correlator into an amplitude and phase value;

     ii.   a magnitude calculation module for determining a signal size of said converted output; and

     iii.   a peak detection module communicating with said magnitude calculation module for determining the presence of information bits.

9   (Original) The circuit of claim 8 wherein said received RF signal comprises a quadrature amplitude modulated (QAM) signal.

10.   (Cancelled) In a wireless digital receiver, a method for detecting the presence of a data packet in a received quadrature amplitude modulated (QAM) radio frequency (RF) signal comprising mapping said QAM RF signal to a quantized phase shift keying (PSK) constellation and processing in a matched complex correlator to detect the presence of a data packet.

11.   (Currently Amended) ~~The method of claim 10 further~~ <ins>A method for detecting the presence of a data packet in a received quadrature amplitude modulated (QAM) radio frequency (RF) signal, the method</ins> comprising ~~the steps of~~:

     <ins>mapping said QAM RF signal to a quantized phase shift keying (PSK) constellation by:</ins>

     ~~(a)~~ removing direct current (DC) offsets from I and Q baseband signals derived from said received QAM RF signal;

     ~~(b)~~ modulating said I and Q baseband signals; <ins>and</ins>

     ~~(c)~~ performing amplitude normalization on said modulated I and Q baseband signals; <ins>and</ins>

     <ins>processing in a matched complex correlator to detect the presence of a data packet by:</ins>

     ~~(d)~~ comparing said amplitude normalized I and Q baseband signals to a reference signal via a complex correlator;

     ~~(e)~~ detecting a peak of said complex correlator output; and

(f) if said peak is above a predefined threshold, indicating that a data packet has been received, ~~else performing steps (a) to (f) on a subsequently received QAM RF signal~~.

12. (Currently Amended) The method of claim 11 wherein said ~~step of~~ performing amplitude normalization comprises mapping said modulated I and Q baseband signals to a quantized phase shift keying (PSK) signal constellation.

13. (Currently Amended) The method of claim 12 wherein said ~~step of~~ detecting further comprises:

     ~~(a)~~ converting said complex correlator output from complex to polar value;

     ~~(b)~~ calculating the signal magnitude of said polar value; and

     ~~(c)~~ determining ~~if~~ whether a data packet containing information bits is present.

14. (Currently Amended) The method of claim [[4]] 13 wherein ~~the step of~~ said determining comprises comparing the signal magnitude to a minimum threshold and ~~if~~ ~~said signal magnitude exceeds said minimum threshold,~~ indicating that a correct signature was received in response to said signal magnitude exceeding said minimum threshold.

15. (Currently Amended) In a wireless digital receiver, a circuit for detecting the presence of a data packet in a received radio frequency (RF) signal, said circuit comprising:

     (a) a direct current (DC) offset module to correct for local oscillator (LO) leakage in in-phase (I) and quadrature (Q) baseband signals derived from said received RF signal; and

     (b) an acquisition module receiving said corrected I and Q baseband signals for performing mapping, comparing and detecting functions in relation thereto to determine ~~the~~ a presence of information bits associated with said data packet.

16.   (Currently Amended) The circuit of claim 15 wherein said acquisition ~~block~~ module comprises:

      i.   a M-ary phase shift keying (PSK) mapper for mapping said I and Q baseband signals to a quantized PSK signal constellation;

      ii.   a complex correlator receiving input from said M-ary PSK mapper for comparing said mapped I and Q baseband signals to a reference; and

      iii.   a detector receiving input from said complex correlator for determining ~~the~~ a presence of a correct signature.

17.   (Currently Amended) The circuit of claim 16 wherein the detector comprises:

      i.   a complex to polar (C2P) converter for converting the output of said complex correlator into an amplitude and phase value;

      ii.   a magnitude calculation module for determining a signal size of said converted output; and

      iii.   a peak detection module communicating with said magnitude calculation module for determining ~~the~~ a presence of information bits.

18.   (Currently Amended) The circuit of claim [[8]] 17 wherein said received RF signal comprises a quadrature amplitude modulated (QAM) signal.